The Ruth H. Hooker Research Library

and Technical Information Center

Navy lab digitizes 600,000 research reports (sic)

NRL researchers soon will be able to access the images from campus network
By SHAWN P. McCarthy, GCN Staff

Laurie E. Stackpole, left, and a Naval Research lab technician supervise storage of research document images from scanner to optical disk.

- **Introduction**

  A picture is worth a page full of words at the Naval Research Laboratory in Washington.

  The lab's Ruth H. Hooker Research Library and Technical Information Center, established in 1923, is converting its vast collection of unclassified and declassified research papers into stored digital images. NRL's 3,500 staff members add 1,500 contractors conduct defense-related scientific research. The research reports section contains 600,000 titles, many dating back to the 1940s.

  Most were created by government agencies or contractors, others came from universities or other countries.

  Scientists can use the library viewing stations, which are 386s or more advanced Pcs, to search the library's Cuadra Star database, which resides on an older machine from Alpha Micro Computer Corp.

  If a selected document has been scanned, they can call up the black-and-white image on screen.

Researchers currently have to trek to the library to use the system but soon will be able to view the images from their desktop stations over NRL's campus network, NICEnet.

"We have shown the system to a lot of other agencies," said Laurie E. Stackpole, the chief librarian. "In the past six months, we've had visitors from more than 30 organizations."

- **Fed by hand**

  Reports are scanned, one sheet at a time, by a DocuScan DS-4530 from Terminal Data Corp. of Moorpark, Calif. A 40-page-per minute feeder came with the scanner, but paper jams often resulted from non-standard papers and aging documents. Operators found they got the best speed and 300-dotper-inch resolution by hand-feeding the pages. About 140,000 reports averaging 55 pages each have been selected for the first part of the scanned collection.

  Almost a third of that group now has been scanned and stored.

- **Random order**

  Unlike a paper collection, reports on disk do not have to be in any particular order. Because the entire collection is to be scanned, reports returning to the circulation desk are scanned rather than refiled. Once a good set of images is stored and a backup made, the original documents can be discarded.

  Duplicate reports also are discarded. Where necessary, reports are prepared for scanning by cutting off the binding or staples.

  Blank or unnecessary pages such as front and back covers arediscarded, and the color graphics are removed and filed.

  Accession numbers are assigned to the documents by a 486 PC from Austin Computer Systems of Austin, Texas. Imaging software, provided by Terminal Data Corp., creates and prints a bar code for each document, which also is scanned.

- **Image by image**

  The 486 displays each image as it is obtained and compressed for temporary storage on an Austin 486 file server.

  The library's Ethernet runs Novell Inc. NetWare.

  The server is linked to a Sony Corp. WDD-600 optical server controlled by a Sony WDC-610 disk control unit. Files are stored directly on 12-inch write-once, read-many (WORM) disks that can hold up to 130,000 pages or 6.55 gigabytes of data. The whole system is protected by an uninterruptible power system that provides 14 minutes of full-load power.

  The systems integrator was Kestrel Associates Inc. of Arlington, Va., an 8(a) woman-owned firm.

  Six Kestrel employees are under contract to work with library staff to operate and maintain the system.

  The library uses a Sony Model WDA-61O writable optical-disk autochanger as its main image storage facility. The jukebox houses 50 disks and a separate WDD-600 disk reader. The library's full collection should fit in two jukeboxes; if necessary, more jukeboxes can be daisy-chained for on-line storage of up to 1.310 terabytes through a single SCSI interface.

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